

I Claim:

1. A permanent magnet drive mechanism comprising a frame, a plurality of energizable coils mounted on the frame, a member mounted for movement on the frame, and a plurality of permanent magnets mounted on the member, the axes of the energizable coils disposed substantially at right angles to the axes of the permanent magnets, whereby, upon energizing of the energizable coils, the member is moved with respect to the frame.

2. A permanent magnet drive mechanism as in Claim 1, wherein the member is rotatably mounted on the frame, whereby, upon energizing of the energizable coils, the member is rotated on the frame.

3. A permanent magnet drive mechanism as in Claim 1, including a starting coil cooperating with the permanent magnets, and wherein the member comprises a wheel rotatable about an axis, whereby, energization of the starting coil determines the direction of rotation of the wheel on its axis.

4. A permanent magnet drive mechanism as in Claim 1, including control means for energizing the energizable coils.

5. A permanent magnet motor comprising a frame, a plurality of energizable coils mounted on the frame, a wheel rotatably mounted on the frame, a plurality of permanent magnets carried on the wheel, the axes of the energizable coils being disposed substantially at right angles to the axes of the permanent magnets, the permanent magnets cooperating with the energizable coils, whereby, upon energization of the energizable coils the wheel will rotate.

6. A permanent magnet motor as in Claim 5, including a starting coil mounted on the frame, whereby, upon energization of the starting coil, the wheel will begin to rotate in a first direction, and upon energization of the energizable coils, the wheel will continue to rotate in said first direction.

7. A permanent magnet motor as in Claim 6, including control means for energizing the energizable coils.

5 8. A permanent magnet motor as in Claim 5, wherein the outer surface of each permanent magnet has a recess therein that is complementary to the outer configuration of the energizable coil, whereby the outer surface of the permanent magnet passes closely to the energizable coil during rotation of the wheel.

10 9. A permanent magnet motor as in Claim 8, wherein the permanent magnets are equally spaced from one another on the wheel.

15 10. A permanent magnet motor as in Claim 8, wherein the energizable coils are equally spaced from one another on the frame.

11. A permanent magnet motor as in Claim 9, wherein there are eight permanent magnets on the wheel.

20 12. A permanent magnet motor as in Claim 10, wherein there are four energizable coils on the frame.

25 13. A permanent magnet motor as in Claim 6, including control means for selectively and sequentially energizing the starting coil and the energizing coils.

14. A permanent magnet motor as in Claim 6, wherein there are four energizing coils on the frame and four permanent magnets on the wheel.

30 15. A permanent magnet motor as in Claim 14, wherein the energizing coils are substantially equally spaced from one another and the permanent magnets are substantially equally spaced from one another.

16. A permanent magnet motor as in Claim 13, wherein the control means include a battery.

17. A permanent magnet motor as in Claim 16, wherein the wheel is mounted on a shaft that is journaled on the frame and the control means includes means associated with the shaft for recharging the battery.

18. A permanent magnet motor as in Claim 13, wherein the control means includes a controller, flags on the wheel which are in alignment with the permanent magnets, a proximity switch means for sensing a flag and for sending a signal to the controller for energizing the energizing coils in sequence

19. A permanent magnet motor as in Claim 5, wherein each energizable coil has an exterior generally in the form of a cylinder and each permanent magnet has an outer surface defined by a curved recess that is complementary to the exterior surface of the energizable coil, whereby, the outer surface of the permanent magnets pass closely to the exterior surface of the energizable coil during rotation of the wheel.